

WHAT IS CLAIMED IS:

1. An apparatus for feeding a wrapping web to a wrapping station where a product is to be wrapped with the wrapping web, said apparatus comprising:

a backstand for holding a supply roll of the wrapping web and for unwinding and rewinding the wrapping web from said supply roll; and

a conveyor for transporting the wrapping web unwound from said supply roll to the wrapping station.

2. The apparatus of claim 1, wherein said conveyor comprises at least one of a vacuum conveyor belt, an electrostatic conveyor belt, and a moving belt having a non-skid surface.

3. The apparatus of claim 1, further comprising a path along which the wrapping web is to be dispensed from said supply roll to said conveyor, said path being without bend rollers.

4. The apparatus of claim 1, further comprising an elongated guiding element having

a first end located below and adjacent said backstand for receiving a lead edge of the wrapping web; and

a second, opposite end located above and adjacent the conveyor for guiding the lead edge of the wrapping web to fall under gravity onto said conveyor.

5. The apparatus of claim 1, wherein said backstand comprises two moveable chuck portions and a driving mechanism for driving said chuck portions, wherein

in chucking motion, said chuck portions are driven by the driving mechanism to move relative to each other and to engage a core of said supply roll, said chuck portions are adapted to rotate said core in opposite directions to unwind and rewind the wrapping web, respectively; and

in shuttling motion, said driving mechanism drives said chuck portions along an axial direction of the product to be wrapped, without changing a distance between said chuck portions, to adjust to a length of the product.

6. The apparatus of claim 1, wherein said driving mechanism comprises two elongated, threaded shafts, a motor and a transmission box;

each of the chuck portions being movably arranged on one of the shafts;

the transmission box selectively transmitting torque between the motor and both of the shafts, thereby effecting the chucking motion of said chuck portions toward or away from each other and the shuttling motion of said chuck portions together along the axial direction of the product to be wrapped.

7. The apparatus of claim 1, further comprising a control for controllably varying an unwinding speed of said backstand depending on the wrapping operation.

8. A method of wrapping a product with a wrapping web stored on a supply roll, said method comprising:

unwinding the wrapping web from the supply roll;

feeding a lead edge of the wrapping web to a wrapping station using a conveyor; and

wrapping the product with an unwound length of the wrapping web.

9. The method of claim 8, further comprising  
cutting the wrapping web after said wrapping has been complete; and  
rewinding an unused portion of the unwound length of the wrapping web onto the supply roll.

10. The method of claim 8, wherein, in said feeding, said wrapping web is fed, without using bend rollers, along a path from the supply roll to the conveyor.

11. The method of claim 8, wherein said feeding comprises

allowing the lead edge of the wrapping web to fall under gravity directly from the supply roll on the conveyor; and

using the conveyor to transport the lead edge and, successively, the unwound length of the wrapping web to the wrapping station where the product is wrapped.

12. The method of claim 11, further comprising  
cutting the wrapping web after said wrapping has been completed; and  
rewinding an unused portion of the unwound length of the wrapping web onto the supply roll;

wherein a new lead edge of the wrapping web obtained after said cutting and rewinding is hung above and adjacent the conveyor for subsequent feeding of the wrapping web to the wrapping station.

13. The method of claim 12, wherein an upper run of the conveyor continues its movement toward the wrapping station during said rewinding.

14. The method of claim 8, wherein said feeding comprises transporting the lead edge and, successively, the unwound length of the wrapping web by the conveyor to the wrapping station;

said method further comprising controllably varying at least one of an unwinding speed of the supply roll and a moving speed of the conveyor, depending on a position of the lead edge of the wrapping web on the conveyor in order to tensioning the wrapping web.

15. The method of claim 8, wherein  
said feeding comprises transporting the lead edge and, subsequently, the unwound length of the wrapping web by a conveyor belt to the wrapping station; and  
the wrapping web is held on the conveyor belt either electrostatically or by vacuum or by a non-skid belt.

16. The method of claim 8, wherein said wrapping includes overlap wrapping comprising:

providing at least two supply rolls;  
moving at least one of said supply rolls along an axial direction thereof so that the wrapping webs of said supply rolls overlap and a total width of the wrapping webs of said supply rolls is sufficient to wrap the product to be wrapped; and  
feeding the wrapping webs from said supply rolls to the wrapping station;  
wherein the product is kept motionless in said axial direction during said overlap wrapping.

17. The method of claim 8, wherein the wrapping web is fed exclusively downwardly from the supply roll to the wrapping station where the wrapping web is then fed between a turning roller and the product being wrapped.

18. The method of claim 8, further comprising  
providing a plurality of said supply rolls having different widths; and  
selecting at least one of said supply rolls to wrap the product, based on the width of the wrapping web of said at least one selected supply roll and a dimension of the product;  
wherein said method is performed without pre-feeding the wrapping web to the wrapping station, where the product is wrapped, prior to said selecting step.

19. The method of claim 8, wherein said conveyor is a vacuum belt;  
said method further comprising controllably varying a vacuum strength of said vacuum belt depending on a position of the lead edge of the wrapping web on the conveyor.

20. A wrapping system, comprising:  
a dispensing station comprising multiple backstands each for containing a supply roll of a wrapping web and dispensing the wrapping web from said supply roll;  
a wrapping station for wrapping a product with the wrapping web from at least one of said backstands, said wrapping station comprising a pair of rollers on which the product is to be cradled, the wrapping web being fed between said rollers and the product in a wrapping operation of said wrapping station; and

a conveyor arranged under said dispensing station for receiving the wrapping web from said at least one of said backstands, which wrapping web falls under gravity on said conveyor, said conveyor extending up to said rollers of said wrapping station for transporting the wrapping web thereto.

21. The system of claim 20, further comprising a wrapping web selector moveable with respect to the backstands to feed the wrapping web from at least one of said backstands to said conveyor.

22. The system of claim 20, wherein said backstands are moveable relative to said wrapping station in an axial direction of said supply roll.